

# Notice of Allowability

Application No.

09/909,277

Examiner

Gentle E. Winter

Applicant(s)

GALE ET AL.

Art Unit

1746

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 04/20/04.
2. ☒ The allowed claim(s) is/are 1,3-23 and 25-34 (renumbered as 1-32).
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 042004.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

### DETAILED ACTION

#### *Claim Rejections - 35 USC § 112--Withdrawn*

Applicant sought clarification of 112 first paragraph rejection and suggested that support for the claim language could be found in the first lines of page 4 of the specification, but that in an effort to expedite prosecution applicant would acquiesce to the amendment, changing the language.

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with John A. Evans on 4/29/04. Dr. Evans faxed a copy of the authorized amendments. Winter indicated that closed claim language was required and read the below proposed changes to Dr. Evans, Dr Evans indicated that the changes were acceptable.
3. The application has been amended as follows:
4. In claim 1 now reads:
  1. (Currently amended) A method for removing contaminants from the surface of a semiconductor substrate comprising:

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forming an intact and contiguous film of a fluid ~~to~~ on a surface of said semiconductor substrate at an ambient temperature;

lowering the temperature of the fluid, thereby forming a solid layer of the fluid over the surface and entrapping contaminants within the layer; and

applying energy consisting of sonic energy having a frequency of from about 5 Hz up to megasonic values to the layer or substrate or both under such conditions as to result in separation of said solid layer including the contaminants from the surface.

5. Claim 23 now reads:

23. (Currently amended) A method for removing contaminants from the surface of a semiconductor substrate comprising:

forming an intact and contiguous film of a fluid on a surface of said semiconductor substrate at an ambient temperature;

lowering the temperature of the fluid by reducing the temperature of the substrate so as to form a solid layer of the fluid over the surface and entrapping contaminants within the layer; and

~~applying a sonic energy~~ energy consisting of sonic energy having a frequency of from about 5 Hz up to megasonic values to the layer or substrate or both under such conditions as to result in separation of said solid layer including the contaminants from the surface.

#### *Reasons for Allowance*

6. Claims 1,3-23 and 25-34, renumbered as 1-32 are allowable.

7. The following is an examiner's statement of reasons for allowance:

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8. The prior art of record relating to an automotive rearview mirror is not longer applicable because the claims recite a semiconductor wafer, and while the cleaning may be inherent (the invention is concerned with removing ice), the rearview mirror is not generally accepted to be a semiconductor.

9. The prior art of record disclosing the application of water, freezing the water film and then heating the wafer, is distinguished by the reference to: "forming a solid layer...applying energy...separation of *said* solid layer". The claims have been amended to further clarify that the layer is not melted, as is disclosed in the prior art of record.

10. The claims further disclose an "intact and contiguous" film. The prior art of record discloses spraying atomized water onto a frozen substrate. Figure 2 clearly indicates that the atomized water coalesces, and the specification speaks to removing particles, not a film.

11. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Examiner Winter would like to thank Applicants' representative Dr. John Evans for his professionalism and courtesy.

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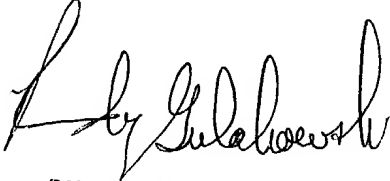
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gentle E. Winter whose telephone number is (571) 272-1310. The examiner can normally be reached on Monday-Friday 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Questions on access to the Private PAIR system, should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gentle E. Winter  
Examiner  
Art Unit 1746

April 29, 2004

  
RANDY GULAKOWSKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700